1 DistView: support for building efficient collaborative applications using replicated objects

Atul Prakash, Hyong Sop Shim

October 1994 **Proceedings of the 1994 ACM conference on Computer supported cooperative work**

Full text available: pdf(1.61 MB) Additional Information: full citation, abstract, references, citings, index terms

The ability to share synchronized views of interactions with an application is critical to supporting synchronous collaboration. This paper suggests a simple synchronous collaboration paradigm in which the sharing of the views of user/application interactions occurs at the window level within a multi-user, multi-window application. The paradigm is incorporated in a toolkit, DistView, that allows some of the application windows to be shared at a fine-level of granularity, while still allowin ...

Keywords: active objects, collaboration technology, concurrency control, distributed objects, groupware, multiuser interfaces, replicated objects, shared windows

2 Supporting multi-user, multi-applet workspaces in CBE

Jang Ho Lee, Atul Prakash, Trent Jaeger, Gwobaw Wu

November 1996 **Proceedings of the 1996 ACM conference on Computer supported cooperative work**

Full text available: pdf(1.47 MB) Additional Information: full citation, references, citings, index terms

Keywords: CSCW toolkits, DistView, Web-based collaboration, access control, group communication, groupware, shared electronic workspaces

3 A concurrency control framework for collaborative systems

Jonathan Munson, Prasun Dewan

November 1996 **Proceedings of the 1996 ACM conference on Computer supported cooperative work**

Full text available: pdf(1.28 MB) Additional Information: full citation, references, citings, index terms

Keywords: collaborative systems, concurrency control, consistency criteria, coupling, merging, transactions

4 Designing object-oriented synchronous groupware with COAST

Christian Schuckmann, Lutz Kirchner, Jan Schümmer, Jörg M. Haake

November 1996 **Proceedings of the 1996 ACM conference on Computer supported cooperative work**

Full text available: pdf(1.01 MB) Additional Information: full citation, references, citings, index terms

Keywords: concurrency control, display updating, groupware, replicated objects, sessions, synchronous collaboration, toolkit

5 Composable collaboration infrastructures based on programming patterns

Vassil Roussev, Prasun Dewan, Vibhor Jain

December 2000 **Proceedings of the 2000 ACM conference on Computer supported cooperative work**

Full text available: pdf(184.80 KB) Additional Information: full citation, abstract, references, citings, index terms

In general, collaboration infrastructures have supported sharing of an object based on its logical structure. However, current implementations assume an implicit binding between this logical structure and particular system-defined abstractions. We present a new composable design based on programming patterns that eliminates this binding, thereby increasing the range of supported objects and supporting extensibility.

6 Distributed data and immersive collaboration

Daniel A. Reed, Roscoe C. Giles, Charles E. Catlett

November 1997 **Communications of the ACM**, Volume 40 Issue 11

Full text available: pdf(1.36 MB) Additional Information: full citation, references, citings, index terms, review

7 Transparent sharing of Java applets: a replicated approach

James Begole, Craig A. Struble, Clifford A. Shaffer, Randall B. Smith

October 1997 **Proceedings of the 10th annual ACM symposium on User interface software and technology**

Full text available: pdf(1.43 MB) Additional Information: full citation, references, citings, index terms

Keywords: Java, collaboration transparancy, computer-supported cooperative work, groupware

8 Language-level support for exploratory programming of distributed virtual environments

Blair MacIntyre, Steven Feiner

November 1996 **Proceedings of the 9th annual ACM symposium on User interface software and technology**

Full text available: pdf(1.68 MB) Additional Information: full citation, references, citings, index terms

Keywords: distributed shared memory, distributed virtual environments, shared-data object model, virtual reality

9 Corona: a communication service for scalable, reliable group collaboration systems

Robert W. Hall, Amit Mathur, Farnam Jahanian, Atul Prakash, Craig Rassmussen

November 1996 **Proceedings of the 1996 ACM conference on Computer supported cooperative work**

Full text available: pdf(1.18 MB) Additional Information: full citation, references, citings, index terms

Keywords: CSCW, Java, awareness, communication services, groupware, multicast, peer group, publish-subscribe

10 Building real-time groupware with GroupKit, a groupware toolkit

Mark Roseman, Saul Greenberg

March 1996 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 3 Issue 1

Full text available: pdf(2.74 MB) Additional Information: full citation, abstract, references, citings, index terms, review

This article presents an overview of GroupKit, a groupware toolkit that lets developers build applications for synchronous and distributed computer-based conferencing. GroupKit was constructed from our belief that programming groupware should be only slightly harder than building functionally similar single-user systems. We have been able to significantly reduce the implementation complexity of groupware through the key features that comprise GroupKit. A runtime infrastructure

Keywords: GroupKit, computer-supported cooperative work, groupware toolkits, synchronous groupware, user interface toolkits

11 Clay: synchronous collaborative interactive environment

Michael Locasto, Michael Hulme, Ryan Gladysiweicz, Justin Tracy, Ursula Wolz

May 2002 **Journal of Computing Sciences in Colleges**, Volume 17 Issue 6

Full text available: pdf(20.12 KB) Additional Information: full citation, abstract, references, index terms

Clay is an architecture that allows content developers simultaneous, real-time editing access to the same documents. It encourages developers to work together in a collaborative environment and provides guidelines for enforcing logical constraints on developer interaction. Clay is constructed of an extremely diverse set of technologies, with Java acting as a common platform and a transportation mechanism (RMI). This allows us to concentrate on defining the high-level interaction of the clients r ...

12 A new approach to collaborative frameworks using shared objects

Aaron Ceglar, Paul Calder

January 2001 **Australian Computer Science Communications , Proceedings of the 24th Australasian conference on Computer science**, Volume 23 Issue 1

Full text available: pdf(836.28 KB) Publisher Site Additional Information: full citation, abstract, references

Multi-user graphical applications currently require the creation of a set of interface objects to maintain each participating display. The concept of shared objects allows a single object instance to be used in multiple contexts concurrently. This provides a novel way of reducing collaborative overheads by requiring the maintenance of only a single set of interface objects. This paper presents the concept of a shared-object collaborative framework and illustrates how the concept can be incorpora ...

13 UI and Applications: A graphical user interface toolkit approach to thin-client computing

Simon Lok, Steven K. Feiner, William M. Chiong, Yoav J. Hirsch

May 2002 **Proceedings of the eleventh international conference on World Wide Web**

Full text available: pdf(1.56 MB) Additional Information: full citation, abstract, references, index terms

Network and server-centric computing paradigms are quickly returning to being the dominant methods by which we use computers. Web applications are so prevalent that the role of a PC today has been largely reduced to a terminal for running a client or viewer such as a Web browser. Implementers of network-centric applications typically rely on the limited capabilities of HTML, employing proprietary "plug ins" or transmitting the binary

image of an entire application that will be executed on the cl ...

Keywords: client-server systems, network computing, remote method invocation, user interface toolkit

14 Resource sharing for replicated synchronous groupware

James Begole, Randall B. Smith, Craig A. Struble, Clifford A. Shaffer
December 2001 **IEEE/ACM Transactions on Networking (TON)**, Volume 9 Issue 6

Full text available: pdf(352.19 KB) Additional Information: full citation, abstract, references, citings, index terms

We describe problems associated with accessing data resources external to the application, which we term *externalities*, in replicated synchronous collaborative applications. Accessing externalities such as files, databases, network connections, environment variables, and the system clock is not as straightforward in replicated collaborative software as in single-user applications or centralized collaborative systems. We describe *ad hoc* solutions that add to development cost and com ...

Keywords: Collaborative work, concurrency control, distributed computing, file servers, object-oriented programming, software

15 A meta model and an infrastructure for the non-transparent replication of object databases

Werner Dreyer, Klaus R. Dittrich
November 2000 **Proceedings of the ninth international conference on Information and knowledge management**

Full text available: pdf(179.36 KB) Additional Information: full citation, references, index terms

Keywords: object databases, object replication, replication meta models

16 Flexible collaboration transparency: supporting worker independence in replicated application-sharing systems

James Begole, Mary Beth Rosson, Clifford A. Shaffer
June 1999 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 6 Issue 2

Full text available: pdf(312.22 KB) Additional Information: full citation, abstract, references, citings, index terms, review

This article presents a critique of conventional collaboration transparency systems, also called "application-sharing" systems, which provide the real-time shared use of legacy single-user applications. We find that conventional collaboration transparency systems are inefficient in their use of network resources and lack support for key groupware principles: concurrent work, relaxed WYSIWIS, and group awareness. Next, we present an alternative approach to implementing collaborat ...

Keywords: Flexible JAMM, Java, application sharing, collaboration transparency, computer-supported cooperative work, groupware, usability

17 Serialization of concurrent operations in a distributed collaborative environment

Maher Suleiman, Michèle Cart, Jean Ferrié
November 1997 **Proceedings of the international ACM SIGGROUP conference on Supporting group work : the integration challenge: the integration challenge**

Full text available: pdf(1.59 MB) Additional Information: full citation, references, citings, index terms

Keywords: concurrency control, distributed systems, groupware systems, multi-user editors, operation transposition

18 Java object-sharing in Habanero

Annie Chabert, Ed Grossman, Larry S. Jackson, Stephen R. Pietrowiz, Chris Seguin

June 1998 **Communications of the ACM**, Volume 41 Issue 6

19 The Upper Atmospheric Research Collaboratory (UARC)

Gary M. Olson, Daniel E. Atkins, Robert Clauer, Thomas A. Finholt, Farnam Jahanian, Timothy L. Killeen, Atul Prakash, Terry Weymouth

May 1998 **interactions**, Volume 5 Issue 3

20 A distributed 3D graphics library

Blair MacIntyre, Steven Feiner

July 1998 **Proceedings of the 25th annual conference on Computer graphics and interactive techniques**

Keywords: distributed shared memory, distributed virtual environments, object-oriented graphics, shared-data object model